"THE INDUSTRIAL AND TECHNICAL CHALLENGE OF THE U.S.S.R."

ADDRESS GIVEN BY ALLEN W. DULLES, DIRECTOR OF THE CENTRAL INTELLIGENCE AGENCY AT THE UNIVERSITY OF CINCINNATI'S 50TH ANNIVERSARY OF COOPERATIVE EDUCATION -- FORUM ON EDUCATION AND INDUSTRY AT WORK FOR PROGRESS

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At the 50th Anniversary of Cooperative Education at the University of Cincinnati you have been discussing education and industry at work for progress in the United States.

You have been hearing of the extraordinary industrial and educational achievements of this country over the past 50 years. This is not only a proper source of pride and renewed assurance of a fuller life for all our people, it is also a major insurance for the preservation of peace. Through education and industry we can help to build up a bulwark of defense to deter any would-be aggressor.

No one element of our development here in the United States is a greater deterrent to any power that would disturb the peace than the industrial potential of this country. Both the Kaiser, in 1917, and Hitler, in 1941, were strangely blind to our industrial power; -- the one when this country was vigorously developing its latent resources, and the latter when our industrial strength had already reached a high point. Hitler was living in seeming ignorance of this country's industrial might when he risked war

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with the United States and brought his country to destruction.

The Soviet leaders, I believe, are better advised on this subject than were the German leaders of those days. Many Soviet officials saw at first hand what this country could do under the stress of wartime mobilization and others at the end of the pipeline in the U.S.S.R. itself came to realize what our industrial power meant and what it could achieve even on short notice. Among the top Soviet leaders, Mikoyan, has actually seen American industry at work.

The fact of this knowledge is important today because no foreign power is likely to risk entanglement with this country until they feel they themselves have forged an industrial machine which is comparable to ours or unless they feel confident that through atomic attack they could cripple or destroy our industrial base.

The first of these goals, namely industrial parity with the U.S.A., will not be within reach of the Soviet Union in the near future despite Soviet progress.

The second possibility, namely vulnerability to atomic attack, is a more uncertain factor. However as long as we maintain a strong defense, with a ready potential for counter attack, war becomes a risky venture for anyone who would resort to it.

Your Program Committee suggested that it might be a useful supplement to your review of America's dramatic progress in education and industry to have a look at what our chief and growing competitor, the Soviet

Union, is doing in these fields. The subject may be a timely one. At the recent 20th Congress of the Communist Party, as well as in the recent announcement of the Sixth Five Year Plan, the Soviet Union has presented its program for the future and in effect issued a challenge to us. I shall briefly discuss the nature of this challenge.

The Soviet Union has become the second greatest industrial power in the world. Today the gross national production of the USSR is slightly more than 1/3 that of the U.S.; it is about 3/4 again as large as that of the United Kingdom which ranks in third place. We still have a very great lead, but the Soviet rate of progress is rapid.

Capital goods and basic materials form in the Soviet Union a greater share of its over-all gross national production than in the United States. Thus while their gross national production was only 1/3 of ours, their production of capital equipment is a much higher percentage, namely about 45%, of ours. A few examples will graphically illustrate the areas of difference. The Soviet production of machine tools now exceeds that of the United States. However, their production of automobiles is between 1% and 2% of our own (although if one adds in trucks as well as automobiles, their automotive production is about 5% of ours.) We produce 50 washing machines for every one produced in the USSR, and 5 radio and TV sets for each one they produce for a population almost 1/4 larger than ours.

But before going into a more detailed comparison of the two countries in the industrial and educational fields, it may be worthwhile to consider the

general basis we adopt for appraising Soviet technical competence and accomplishments.

Because of rapid advances that the Soviet Union has made in recent years, there is a growing school of thought that tends to exaggerate Soviet accomplishments; to portray the Soviets as the "giants" of the industrial world. There is another school that tends to belittle what they have done and to consider that while good at chess, the ballet or even in sports, they are in some way mentally inferior to Westerners. The truth lies with neither of these extremes.

In my work as the Director of the Central Intelligence Agency, I have the problem of gathering together from all intelligence sources available both here and abroad, the facts and figures on the Soviet economy and then getting the most competent experts available, in and out of government, not only those in the CIA itself, to examine and analyze these facts and figures.

In general, this examination has led me to the conclusion that the only safe position to take is that in the technical, engineering and industrial fields, the Soviets can achieve any particular objective we can achieve. Of course they like to let us do the pioneering in many fields and then copy our results. In some fields, however, they are doing pioneering work on their own.

Those who have assumed that we have superior technical skills, that we could produce atomic weapons, aircraft and the like which are beyond the competence of the Soviet, have generally proved to be mistaken. Certainly

in recent years I have not proceeded on any such assumption.

The Soviets have shown high competence in the field of nuclear development both for military and peaceful purposes. They have produced highly efficient aircraft, from heavy bombers to helicopters. They are highly competent in the field of electronics, their steel industry is efficient and the same is true generally across the board in the industrial field. Where we particularly excel is in our highly competent manpower and in the efficient use we make of it, particularly through the incentives our society provides to call forth individual effort.

There is no doubt that in many countries, particularly among the countries in Asia which have obtained freedom over the past few decades, the rapid industrial progress of the Soviet Union has made a very deep impact. This impact has been increased as the Soviet Union has come forward with tempting offers in the field of military and industrial equipment.

These Asian countries tend to forget that the Soviet Union has built upon years of pioneering work in the United States and Western Europe particularly in developing their industrial revolutions through basic discoveries in the field of internal combustion, electricity, and the like. It was on the basis of this know-how that the Soviet Union has built.

The Soviets have been adept at taking from us and adapting to their own uses the most sophisticated equipment and devoting their own engineering talent in many cases to trying to develop further from the base which we have handed them on a silver platter. They did not start from scratch. They, in

fact, started more than half way down the course of the industrial revolution. This fact is not generally taken into account by certain other countries which have been less fortunate in their industrial development and erroneously attribute to the Soviet system accomplishments which, in fact, are the work of free enterprise and a free educational system.

The USSR in its industrial programs has accorded second place to its people's needs or wants. If the Soviet leaders wish to concentrate on military development at the expense of all else, they do so. If they wish to invest most of their money in heavy industry -- as they have done -- at the expense of light industry and agriculture, they do so. If the labor force, from their point of view, can be used to better advantage in one field than another, they can and do, shift it accordingly.

While, as I have indicated, the Soviet industrial base is still only a fraction of our own, it is nevertheless large enough to permit the Soviet leaders to expand impressively their military capability, to play an increasingly active economic role in undeveloped areas and to speak confidently at the 20th Party Congress of closing the gap between their output and ours.

As we assess our own position of leadership and look to the future, it may be well to note the challenge which this represents, to understand how this rate of growth has been achieved and also, to look at the prospects for the future.

The value of Soviet total economic output has increased almost three-fold from 1928 to date and this despite a devastating war which set them back

severely during the period 1941-45. The rate of their industrial growth during this period has been about twice as high as the rate of their over-all growth since important factors of their economy have lagged, particularly agriculture and consumer goods.

How has this rate of industrial growth been achieved? Four factors seem particularly important.

1) A large part of the total national production of the USSR has been devoted to investment. We estimate that 24% of the gross national production went directly into capital investment in 1955 to increase the base for future industrial growth and expanded military capabilities. Only 18% of our gross national production is currently being used for capital investment purposes and this is the highest percentage achieved in the post-war period.

Of course it is consoling to note that 18% for us amounts to a far greater absolute total than 24% for them. In their case, however, heavy industry has been the major beneficiary and is now absorbing about 50% of their total investment.

Industrial plant and equipment in the Soviet Union has nearly tripled since 1940 and their investments have been allocated predominately to the coal, oil and electric power industries, to metalworking and metallurgical industries. This high allocation to these particular industries, as noted above, has been at the expense of the present welfare of the population which has been accorded minimum requirements and a residual position in the execution of Soviet planning. Two examples of this stand out:

While capital goods output was rising over tenfold, agricultural production has barely kept pace with the growth of population.

Ambitious plan goals for heavy industry are usually made or surpassed; unimpressive goals for consumer goods and agriculture have fared badly.

2) Millions of workers have been transferred from agriculture to urban occupations and the agricultural labor force actually declined some 6% between 1938 and 1952. This loss, despite extraordinary efforts, has barely been made good in the past three years. The non-agricultural force on the other hand increased about 60% during this period.

3) A prodigious effort has been expended on scientific and technical education. Soviet colleges receive about 500,000 students and graduate about 250,000 each year. Total U.S. entrants and graduates are about 10 percent higher, but the Soviets train a far greater proportion in the sciences than we do. In 1955 about 60 percent of graduating full-time Soviet students were in scientific and technical fields compared with about 25% in the U.S. In 1955, the Soviet Union graduated from all advanced schools about 80,000 in the physical sciences and engineering and about 50,000 in the biological sciences. In the U.S. about 37,000 were graduated in the physical sciences and 39,000 in the biological sciences. At this greater rate of graduation in sciences -- now 130,000 annually in the Soviet Union as opposed to 77,000 in the U.S. -- the Soviets will attain an imposing advantage in number of scientists and engineers in a few years time if they and we continue at our present rates.

The U.S.S.R. now has about two thirds the number of scientists that the U.S. has in the research and teaching aspects of physical and biological sciences; 190,000 versus 280,000. In research alone, the U.S.S.R. has about half the U.S. number; 120,000 versus perhaps 240,000.

4. As I indicated above, Soviet industry has advanced by relying on the accumulated scientific and technical developments in the Free World. Soviet leaders have telescoped a century and a half of pains-taking research effort into a few years and have realized all its benefits at relatively little cost to themselves.

The principal long-term economic task of the Soviets as expressed in the Sixth Five Year Plan, is "to overtake and surpass the most developed capitalist countries as regards per capita production."

This general objective has been thus amplified by Saburov, a member of the Politburo:

> "It is true that we have not yet caught up to the United States either in the volume of production per capita, and so far in the volume of industrial production per capita. However, the pace of our development, which by many times exceeds the pace of the growth of industry in the United States, permits us to overcome this lagging behind within a very short historic period of time."

If this goal is to be achieved it means that forced draft industrialization will be continued not only through the Sixth Five Year Plan, but beyond. It will be accompanied by low standards of living, continued poor housing, few services, very expensive clothing and an adequate but uninspiring diet. Hours of work will be high by U. S. standards even though some further gradual reduction from the recently announced 46 hour week may be expected. The individual will have relatively little freedom to select either his occupation or place of work. How long will the Soviet men and women tolerate this?

Soviet plans for the next five years, if they are met, will significantly strengthen the U.S.S.R.'s war supporting potential. Over and above the general strengthening of the industrial base, it is expected that the output of the electronics industry, which contributes many essential items required in high-performance military equipment (including guided missiles), will be tripled. Also, in the field of special heat resistant alloys where the Soviets have done so much for fundamental research, the new five year plan calls for a sixfold increase in production.

The achievement of the goals which the Soviets have set for themselves over the next five years will require a special type of industrial effort and will, at the same time, provide them with an industrial base more directly comparable to our own.

Can the new goal be achieved? We have already commented on the major effort which the Soviets are making in the field of scientific

and technical education. It is useful now to look at their plans for improved mechanization. Do they have command of the necessary technology?

The Soviets have placed very great emphasis on the production of machine tools. We have already observed that their output in 1955 exceeded ours. Not only can they produce these tools in volume, but they have the capability to produce complex high-precision tools.

The Sixth Five Year Plan outlines in some detail Soviet plans for the future. These call for the introduction of automatic processes in the metallurgical, extractive, machine building, electro-technical, chemical and construction industries as well as a number of consumer goods industries. In the machine building industries it is proposed to put into operation some 220 automatic and semiautomatic lines and shops. Obviously, this is just a start.

In order to assure the rapid introduction of improved production processes, a new ministry has been created - The Ministry for Instruments and Means of Automation. In addition, new deputy ministers have been assigned to the various economic ministries to provide leadership for the development of these programs.

What this seems to mean is that the Soviets have now passed the point where expansion of output is to be achieved by simply adding more plant and equipment to the existing stock of capital. Questions of plant modernization and equipment replacement, of better work methods and processes will command increasing attention as the more economical means

for achieving output goals.

It is possible to cite numerous examples - tractors, construction equipment, road building equipment and motor vehicles - in which the Soviets have appropriated western technology for themselves, adapted it to their requirements where necessary and, in fact, used the model as the base for further technological development. This practice will shorten the time period within which we will have a commanding technological lead. Moreover, this practice releases scarce scientific and technical manpower to work in those areas which have the greatest strategic significance to the Soviets.

That the rapid pace of Soviet industrialization has commanded a high price in terms of consumer living standards and particularly in terms of agricultural production is clear. Both manpower and investment have been diverted from the farms to the urban centers. The result is that the growth of agricultural output over the past two decades has been lower than the growth of population. It is useful to look at this problem for two reasons. First, the agricultural sector is one of the important areas of weakness in the Soviet economy. Second, paradoxical though it may appear at first glance, a resolution of this problem may well be found by continued concentration of effort on industrial growth.

Let me recite just two central facts concerning Soviet agriculture. Only about 10 percent of the U.S.S.R. is classified as arable and soils, rainfall, temperature and other climatic factors combine to provide good yields

without large investment in only about one tenth of the arable area. Under the "New Lands Program" which has resulted in an 18 percent increase in sown area over the last two years, cultivation has been pushed into distinctly marginal regions. Beyond this, output per farm laborer has been very low relative to that achieved in the United States. In rough terms, it has required about one farm worker to supply four persons in the U.S.S.R. compared with one farm worker for every sixteen persons in the United States. Although Soviet plans for improving agricultural output are ambitious, it is doubtful that they can quickly overcome these handicaps and meet the goals they have set.

There is an approach to the agricultural problem, however, which the Soviets may exploit regardless of how well they succeed in meeting their agricultural goals. As Soviet industrial capabilities rise and as costs of production decline, the opportunities for trading Soviet industrial commodities in world markets for agricultural supplies will undoubtedly appear increasingly attractive. Moreover, their economic capabilities appear to fit nicely with their political objective of increasing the volume of trade with underdeveloped countries. Thus it may well turn out that the industrial growth which the Soviets have pushed so aggressively will provide a solution not only to the problem of feeding their growing population, but also the means for furthering their political ambitions in the underdeveloped areas of the world.

The Soviet industrial and educational systems which I have been describing depends upon the dictatorial controls inherent in the Soviet system. I have suggested that the emphasis they have been placing on heavy industry has been at the expense of the standard of living and consumer goods for the people. Their educational system has likewise been subject to the dictates of the State.

How long will the Soviet people tolerate this situation, what courses of action, what alternatives do they have? Education, after all, is a dangerous drug for dictators. The Soviet educational processes, even though tied in with much Marxist indoctrination, and characterized by great emphasis on the physical as opposed to the political sciences, has taught the people to think and to question.

Industrial development on the large scale I have indicated has developed many plant managers and high-grade technicians. This is all creating a "middle class" managerial group who feel a vested interest in their jobs and want to keep the advantages they enjoy. The pressures that these trends have created cannot be ignored by the men in the Kremlin. While they have arbitrary powers, they dare not exercise it with total disregard for the feelings and sentiments, the convictions and yearnings of the people on whose efforts the Soviet system depends.

We have already seen that Malenkov when he took over the Kremlin leadership in 1953 started a trend toward producing more consumer goods. Then, presumably as the effect of this began to be felt too drastically in the field of heavy industry and military preparedness, the trend was

substantially modified, and in the process Malenkov was demoted. Malenkov is still in the Politburo, and he may be coming back again to a position of greater influence. Does this foreshadow another round of offers of greater material benefits? This time will the Soviet people again have to live on promises of a better life or will this dream have some reality?

The Soviet leaders have been taking certain steps both internationally and domestically which they hope will have a calming effect on their own public opinion. These steps are bound up with the dramatic program of de-Stalinization which is an attempt to repudiate their erstwhile hero, dictator, political and military leader and expounder of the Marxist-Leninist faith. One of their purposes here is to try to shed the responsibility they share for the hard, openly aggressive international line represented by Stalin's policy in the late 40's and the early 50's: their attempt to take over Greece by guerrilla warfare, to seize Berlin by blockade, to frighten Tito into abject submission and to conquer Korea by force of arms. These policies stand today seemingly discredited and repudiated by the leaders in Moscow who hope thereby to impress not only the outside world but their own people that they want peace at least for a time.

They have just recently made a new so-called peaceful gesture, the declaration of the end of the Cominform. This is nothing more than a cheap propaganda move, presumably intended to manufacture a favorable climate for the foreign visits of the peripatetic Soviet leaders. As a matter of fact, the Cominform has for years been an almost inactive appendix of

the Soviet cold war apparatus. It has merely outlived its usefulness, and now follows into oblivion its parent, the Comintern, deceased 1943.

There is not the slightest suggestion of abandoning what the Communists call "the general objectives of the Marxist-Leninist parties." The Comintern and the Cominform one of these days may well be followed by a third incarnation, a new international of some sort, with the same old aims redefined so as to lure unwary Socialists into cooperation with the Communists.

In addition to these gestures intended to foster a better atmosphere for conducting international relations, the Soviet leaders, both through the de-Stalinization program and otherwise, are trying to create the impression that the Soviet people will have a "new freedom" from the worst abuses of the secret police oppression, the concentration camp system of the Stalin-Beria regime.

Over the coming months and years we will see how far these feeble steps will go to satisfy the yearning of the Russian people for something better than the empty promises they have been receiving.

The ordinary material comforts of life are becoming more and more sought after in the U.S.S.R. Education is becoming more universal. The continuing managerial and technological revolution produces ever greater numbers of men and women who have a stake in the orderly development of Soviet society. Gradually increasing contacts with the Western world are giving many Soviet official glimpses of the extraordinary

latitude given elsewhere to individual effort, imagination and taste. Such glimpses are dazzling - perhaps a little frightening but also tempting - to men and women brought up in the brutal and arid waste of totalitarian conformity. The mere burial of outward forms of Stalinism will not satisfy the Russian people of today.

It is not easy to predict the direction, in broad human terms, that Soviet society will take. The Soviet leaders themselves probably do not see clearly the final turnings of some of the paths down which they have set. My guess is that modern industry, technology and education, which today unquestionably are making the Soviet Union into a very powerful nation indeed, may in the long run prove to be a leaven that gradually transmutes Soviet society into a new form which will not tolerate the present type of dictatorship.

Ever since Adam and Eve tasted the apple from the forbidden tree of knowledge, men have had to pay the price of reasonable restraint and toleration of one another's differences in return for the fruits of civilization. The Russians will not be immune to this tendency. Let us hope that industrial strength, technology and education will eventually help the Russians to political and social liberty.